

What is claimed is:

1. A method of restoring a video, comprising the steps of:
identifying whether a scene on an image sequence is changed;
5 detecting whether a 3:2 pull-down mode exists in the image sequence;
generating a first interpolated frame by interleaving a field to be interpolated
and adjacent fields each other when there is the 3:2 pull-down mode;
generating a second interpolated frame by de-interlacing the field to be
interpolated and the adjacent fields each other when there is not the 3:2 pull-down
10 mode; and
outputting one of the first and second interpolated frames selectively.

2. The method of claim 1, wherein the step of identifying whether a
scene on an image sequence is changed is carried out by detecting motions
15 between the adjacent fields.

3. The method of claim 1, wherein the first interpolated frame is
outputted when the 3:2 pull-down mode exists and the second interpolated frame
is outputted when the 3:2 pull-down mode does not exist.

20 4. The method of claim 1, wherein the field to be interpolated is a
current field, and wherein the adjacent fields are previous field and future field.

5. The method of claim 1, wherein the 3:2 pull-down mode is detected by comparing a motion count value between the previous and future fields to a predetermined threshold value.

5 6. The method of claim 5, wherein the motion count value is attained by counting a portion, where a motion between the previous and future fields is detected, over an entire screen.

7. The method of claim 1, the step of detecting whether a 3:2 pull-down mode exists, comprising the steps of:

identifying whether the current field is equal to the previous field by analyzing a video input signal and outputting a corresponding identification signal;

ANDing the identification signal with an output signal of a multiplexer;

outputting a first control signal for controlling an operation of the multiplexer in accordance with a field of the video input signal;

recording an ANDing value in order by receiving the first control signal;

selecting the recorded value in order in accordance with the first control signal;

identifying whether the recorded value is equal to a recorded value of a previous sequence;

counting a number of occurrence that the recorded value is equal to that of the previous sequence;

comparing the counted value to the predetermined threshold value; and

outputting a second control signal by referring to the comparison result and a scene transition detecting signal.

8. An apparatus for restoring a video, comprising:

5 a scene transition detecting unit outputting a scene transition detecting signal by detecting a motion of image from field data;

a 3:2 pull-down mode detecting unit detecting whether a 3:2 pull-down mode exists in the field data and outputting a first control signal on the basis of a corresponding detection result and the scene transition detecting signal;

10 a field interleaver generating a first interpolated frame by interleaving the field data by receiving the first control signal when the 3:2 pull-down mode is detected;

a de-interlacer generating a second interpolated frame by de-interlacing the field data in accordance with the first control signal when the 3:2 pull-down mode is not detected; and

15 a multiplexer selecting to output the first or second interpolated frame in accordance with the first control signal.

9. The apparatus of claim 8, wherein the multiplexer selects to output
20 the first interpolated frame when the 3:2 pull-down mode is detected and the second interpolated frame when the 3:2 pull-down mode is not detected.

10. The apparatus of claim 8, wherein the field data are outputted from a field data providing unit including a plurality of field memories.

11. The apparatus of claim 10, wherein a plurality of the field memories include three field memories connected in series.

5 12. The apparatus of claim 8, wherein the field data are image data of a current field, previous fields, and an future field.

13. The apparatus of claim 8, wherein the scene transition detecting signal is outputted when a scene on an image sequence is changed.

10 14. The apparatus of claim 8, wherein the 3:2 pull-down mode detecting unit detects the 3:2 pull-down mode by comparing a motion count value between the previous and future fields to a predetermined threshold value.

15 15. The apparatus of claim 14, wherein the motion count value is attained by counting a portion, where a motion between the previous and future fields is detected, over an entire screen.

20 16. The apparatus of claim 8, the 3:2 pull-down mode detecting unit including:

a same field identifier identifying whether the current field is equal to the previous field by analyzing a video input signal and outputting a corresponding identification signal;

an AND gate ANDing the identification signal with an output signal of the multiplexer;

a first counter outputting a second control signal so as to control a selective operation of the multiplexer;

5 field flags storing an output value of the AND gate in order by receiving the second control signal;

the multiplexer selecting output signals of the field flags in order in accordance with the second control signal and supplying the AND gate with the selected output signals;

10 a sequence identifying unit identifying whether a value recorded in the field flags is equal to a value recorded in the previous image sequence;

a second counter counting the number that the sequence identifying unit identifies the same;

15 a comparator comparing a count value of the second counter to a predetermined threshold value; and

a field interleaving controller outputting the first control signal by referring to a comparison result of the comparator and the scene transition detecting signal.

17. A method of restoring a video, comprising the steps of:

20 identifying whether a scene on an image sequence is changed by receiving consecutive field data and by detecting a quantity of a motion between adjacent fields;

detecting whether a 3:2 pull-down mode exists in the field data and generating a first interpolated frame by interleaving the field data on the basis of a corresponding detection result and a corresponding scene transition result;

generating a second interpolated frame by de-interlacing the field data if a sequence outputted by consecutively detecting the 3:2 pull-down mode for each field is zero, the field to be interpolated is interleaved with a field having no relation with each other; or none of previously set-up output sequences is detected; and outputting one of the first and second interpolated frames selectively.

18. The method of claim 17, wherein the field data are image data of a current field, previous fields, and a future field.

19. The method of claim 17, the step of identifying whether a scene on an image sequence is changed, comprising the steps of:

counting a part, where a motion between the current and previous fields is detected, over an entire screen;

counting a part, where a motion between the current and future fields is detected, over the entire screen; and

identifying whether the scene is changed by comparing the motion count values each other.

20. The method of claim 17, wherein the previously set-up sequence includes "10000", "01000", "00100", "00010", and "00001".